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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,169	05/10/2007	Xavier Couillens	1022702-000323	5100

21839 7590 07/20/2011
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EXAMINER	
KOLLIAS, ALEXANDER C	
ART UNIT	PAPER NUMBER
1725	

NOTIFICATION DATE	DELIVERY MODE
07/20/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/583,169	COUILLENS ET AL.	
	Examiner	Art Unit	
	ALEXANDER KOLLIAS	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 June 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15 and 20-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15 and 20-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. All outstanding objections and rejections, except for those maintained below, are withdrawn in light of applicant's amendment filed on 6/20/2011.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.

3. The new grounds of rejection set forth below are necessitated by applicant's amendment filed on 6/20/2011. In particular, original Claim 15 has been amended recite that the thermoplastic matrix comprises a polyamide, while newly added claims 33-34 and 35 recite limitations not previously presented, i.e. claims 33-34 recite amounts of compound F3 while claim 35 recite that the polyamide is a (co)polyamide. Thus, the following action is properly made final.

Claim Rejections - 35 USC § 103

4. Applicant's arguments filed 6/20/2011 have been fully considered but they are not persuasive.

5. Claims 15, 20-26, and 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schlosser et al (US 6,255,371) in view of Yakabe et al (US 2002/0151625).

Regarding claims 15, 21-22, and 32, Schlosser et al teaches a fire-retardant composition comprising polyamides and copolyamides such as nylon-6, nylon-4, and nylon-6,6 or polyester such as PBT or PET (Column 5, Lines 47-64 and Column 6, Lines 1-8). Regarding the fire-retardants, the reference discloses phosphinates given by Formula (I) which is identical to Formula (I) (disclosed a component A) recited in claim 1 as F1 (Abstract, Column 1, Lines 50-59). The reference discloses that R^1 and R^2 of disclosed Formula (I) are C_1-C_6 alkyl and can be the same of different (Column 1, Lines 65-67). The reference discloses that the phosphinate salt is added to the composition in the amount from 3 to 20 wt % (Column 3 Lines 22-25). Furthermore, it is noted that the amount disclosed by the reference is within the recited amount from 1 to 15 wt % of F1 recited in claim 15 (Column 3, Lines 22-25).

The reference discloses that the composition comprises a second fire retardant such as condensation products of melamine and/or reaction products of melamine with phosphoric acid such as melamine polyphosphate and melem polyphosphate (compound F2) (disclosed as component B Column 2, Lines 7-12 and Column 2 Lines 57-60). The disclosed melamine and melem polyphosphate compound disclosed by the reference clearly encompass the compounds recited in claim 21. It is noted that disclosed component B can be either melamine reaction products or melamine phosphate or a combination of the two. It is noted that disclosed compound B can be a mixture of melamine reaction products and melamine phosphate which clearly compasses compounds F2 and F3 recited in the instant claims. Furthermore, the reference discloses that component B comprises 3 to 20 wt % (Column 3 Lines 22-25).

It is noted that components A and B comprise 6 to 40 wt %, clearly meeting the claim limitation recited in claims 15 and 32 that the composition comprises at least 13 wt % and 15 wt

% of F1 and F2. Furthermore, as the reference discloses that components A (F1) and B (a mixture of F2 and F3) may independently comprise 3 to 20 wt % of the composition, the total amount of components A and B (and therefore compounds F1-F3) is 6 to 40 wt %, meeting the claim limitation that F1-F3 comprises 1 to 50 wt % of the composition.

Schlosser teaches all the claim limitations as set forth above. While the reference discloses the use of mixtures of condensation products of melamine and reaction products of melamine with phosphoric acid, the reference does not disclose amounts of melamine reaction products.

Yakabe et al discloses fire retardants for polyamides comprising melamine polyphosphates utilized in an amount from 10 to 38 wt % of the composition (Abstract, Page 2 [0011], Page 3 [0025]-[0026]). The reference discloses that these compounds offer very high flame-retardation effects when utilized in combination with inorganic reinforcing materials such as glass as well as heat resistance (Page 3 [0026], [0029]). Further it is noted that based on the amount of the compounds F1 (3 to 20 wt %) and F3 (3 to 20 wt %) disclosed by Schlosser and the amounts of melamine polyphosphate (F2) disclosed by Yakabe et al (10 to 38 wt %), the total amount of F1-F3 is determined to be 3 to 78 wt % of the composition, which overlaps the amount of 1 to 50 wt % of F1-F3 recited in claim 15. It is noted that the polyphosphate compounds disclosed by the reference meets the limitations in claim 21 drawn to compounds such as melamine polyphosphate.

With respect to the limitation drawn the amounts of the compounds F1, F2, and F3 comprising 14 to 35 wt % of the composition, it is noted that the combined disclosures of Schlosser and Yakabe et al disclose that the total amount of F1-F3 is 6 to 40 wt % of the

polyamide composition and which overlaps the range of 14 to 35 wt. % recited in the present claims.

Given that Schlosser et a discloses a composition comprising polymers, phosphinate salts, melamine condensation products and reaction products of melamine and phosphoric acid, as well as inorganic fillers and given that the reference does not explicitly prohibit other ingredients, in light of the particular advantages provided by the use and control of the melamine polyphosphate as taught by Yakabe et al, it would therefore have been obvious to one of ordinary skill in the art to include such compounds in the composition disclosed by Schlosser et al with a reasonable expectation of success.

Regarding claim 20, the combined disclosures of Schlosser and Yakabe et al teach all the claim limitations as set forth above. Although Schlosser does not explicitly disclose the phosphinic acid compounds recited in claim 20, disclosed Formula (I) comprising groups R1 and R2 which may be identical or different and are C_{1-6} alkyl clearly encompasses the recited compounds in the present claim.

Regarding claims 23-25, the combined disclosures of Schlosser and Yakabe et al teach all the claim limitations as set forth above. As discussed above, Schlosser discloses a composition where polymer is a polyamides or copolyamide such as nylon-6, nylon-4, and nylon-6,6 or polyester such as PBT or PET meeting the limitations recited (Column 5, Lines 47-64 and column 6, Lines 1-8).

Regarding claims 26 and 31, the combined disclosures of Schlosser and Yakabe et al teach all the claim limitations as set forth above. Additionally, Schlosser discloses that the composition comprises fillers such as glass fibers as well as articles of manufacture such as moldings, films, filaments and fibers, meeting the claim limitations recited in claim 26.

Regarding claim 30, the combined disclosures of Schlosser and Yakabe et al teach all the claim limitations as set forth above. Additionally, Schlosser discloses a process of blending the thermoplastic polymers with the flamed retardant system (Column 7, Lines 5-19).

Regarding claim 33, the combined disclosures of Schlosser and Yakabe et al teach all the claim limitations as set forth above. As discussed above Schlosser discloses that the compound F3 comprises 3 to 20 wt % of the composition.

Regarding the amount of F3 disclosed by Schlosser it is well settled that where the prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See In re Harris, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir 2005); In re Peterson, 315 F.3d 1325, 1329, 65 USPQ 2d 1379, 1382 (Fed. Cir. 1997); In re Woodruff, 919 F.2d 1575, 1578 16 USPQ2d 1934, 1936-37 (CCPA 1990); In re Malagari, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

Regarding claim 34, the combined disclosures of Schlosser and Yakabe et al teach all the claim limitations as set forth above. As discussed above Schlosser discloses that the compound F3 comprises 3 to 20 wt % of the composition.

Regarding the amount of F3 disclosed by Schlosser it is well settled that where the prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See In re Harris, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir 2005); In re Peterson, 315 F.3d 1325, 1329, 65 USPQ 2d 1379, 1382 (Fed. Cir. 1997); In re Woodruff, 919 F.2d 1575, 1578 16 USPQ2d 1934, 1936-37 (CCPA 1990); In re Malagari, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

Regarding claim 35, the combined disclosures of Schlosser and Yakabe et al teach all the claim limitations as set forth above. As discussed above, Schlosser discloses polyamides and copolyamides (Column 5, Lines 47-64 and Column 6, Lines 1-8)

6. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schlosser et al (US 6,255,371) and Yakabe et al (US 2002/0151625) as applied to claims 15, 20-26, and 30-35 above, and in view of Lewis (see pages of *Hawley's Condensed Chemical Dictionary* attached to previous Office Action) and Pitts et al (US 3,865,760).

The discussion with respect to Schlosser et al and Yakabe et al as set forth in Paragraph 5 above is incorporated here by reference.

Regarding claims 28-29, the combined disclosures of Schlosser et al and Yakabe teach all the claim limitations as set forth above. Additionally, Schlosser discloses that the compositions may comprise compounds such as chalk (Column 7, Lines 13-19). As evidenced by Lewis chalk is commonly known in the art as calcium carbonate which meets the limitations drawn to alkaline earth metal carbonate recited in the claim 29. While the references do not disclose that calcium carbonate is a flame retardant synergist, it is the Examiner's position that calcium carbonate will inherently function as a synergist. Evidence to support the Examiner's position in found in Col. 1, Lines of 57-61 of Pitts which discloses that calcium carbonate is a flame retardant. Thus, given that the Schlosser discloses a compositions comprising the flame retardants discussed above and given the evidence in Pitts, it is clear that chalk as disclosed in Schlosser will function as a flame retardant synergist as presently claimed.

7. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schlosser et al (US 6,255,371) and Yakabe et al (US 2002/0151625) as applied to claims 15, 20-26, and 30-35 above, and in view of Hanabusa et al (US 6,433,045).

The discussion with respect to Schlosser and Yakabe et al as set forth in Paragraph 5 above is incorporated here by reference.

Regarding claim 27, the combined disclosures of Schlosser and Yakabe et al teach all the claim limitations as set forth above. Additionally, Schlosser teaches that minerals such as chalk may be added to the fire retardant molding composition (Column 7, Lines 20-23). However, the

reference does not teach a composition, wherein the reinforcing fillers are wollastonite, kaolin, clay, silica and mica.

Hanabusa et al teaches a fire retardant composition comprising inorganic fillers are wollastonite, kaolin, clay, silica and mica (Column 5, Lines 40-49). Furthermore, the reference teaches that inorganic fillers can be used either singly or in combination of two or more of them. The fibrous filler, particularly the combination of a glass fiber with a powdery and/or platy filler (such as mica, See Column 5, Lines 48-49), is desirable for obtaining excellent mechanical strength.

Given that both Schlosser et al and Hanabusa et al are drawn to flame retardant thermoplastic compositions comprising phosphoric acid salts (Formula F1 of instant application), melamine compounds, and inorganic fillers and fibers, and, given that Schlosser et al does not explicitly prohibit other ingredients, in light of the particular advantages provided by the use and control of the amount of inorganic fillers as taught by Hanabusa et al, it would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to include such inorganic fillers in the flame retardant thermoplastic composition as taught by Schlosser with a reasonable expectation of success.

Response to Arguments

8. Applicant's arguments filed 6/20/2011 have been fully considered but they are not persuasive.

9. Applicants' arguments regarding the prior art reference Schlosser and unexpected results Glow Wire Ignition Test (GWIT) results of compositions comprising F1-F2 are not found to be convincing for the following reasons:

10. With respect to Schlosser, Applicants argue that none of the examples of Schlosser et al employ the compound F3. However, while the use of F3 is not exemplified by the reference, it is noted significant to note that the reference does explicitly disclose the use of melamine condensate derivatives, melam, melam, melon, as the preferred melamine condensation derivative which is utilized in amounts for 3 to 20 wt %, see for example Col. 2 Lines 50-52 and Col. 3 Lines 22-25 – disclosed as Component B. Furthermore, it should be noted that the reference does explicitly disclose the use of melamine polyphosphate compound in combination with melamine condensation derivative, see Col. 2 Lines 6-10. Furthermore, while the reference does not discloses amounts of F2 to be utilized in the disclosed compositions, as discussed above, the reference does explicitly disclose/suggest combinations of melamine condensation derivatives with reason products between phosphoric acid and melamine. To this end, it is noted that the amount of F2 and benefits thereof in polymeric compositions were taught by Yakabe et al, i.e. the use of melamine polyphosphates in combination with inorganic reinforcing material, i.e. glass fiber, yields high flame-retardation heat effects.

11. With respect to Applicants' arguments drawn to the Glow Wire Ignition Test (GWIT) results of the presently claimed compositions is not found convincing for the follow reasons:

Table 1 of the present Specification discloses Inventive Compositions 1-4 which comprise the compounds F1 (Formula I with R1 and R2 are ethyl and M is aluminum), F2 (melamine polyphosphate) and F3 (melem); Comparative Composition A comprises the compounds F1 and F2. Of the presented embodiments, the only proper side by side comparison is Comparative A compared to Inventive 1, i.e. both contain identical amounts of compounds F1 and F2. However, it is noted Inventive Example 1 comprises 5 wt % of F3 while the present claims recite an amount of F3 from 1 to 10 wt % of a melamine condensation derivative and the closest prior art of record discloses an amount of F3 melamine condensation derivatives, i.e., melem in the amounts from 3 to 20 wt %. Thus, Inventive Example 1 is not commensurate in scope with the scope of the closest prior art and the present claims.

The present embodiments are drawn to polyamine compositions comprising a specific polymer, i.e. polyamide, and the specific compounds F1- F3 discussed above. Given that the present claims are drawn to any polymer, and relatively generic reaction product of phosphoric acid and melamine or a reaction product of phosphoric acid and a melamine condensation derivative, and F3 is a melamine condensation derivative, the Inventive Embodiments are not commensurate in scope wit the scope of the present claims. That is given that Schlosser discloses the compound F3 and amounts thereof, a proper comparison of data showing composition with and without F3 is not sufficient to overcome the combination of references applied against the present claims.

Applicants argue the while Examples 2 to 4 (in the instant Specification) do not employ identical amounts of F1 to F2 to Comparative Example A, the amounts of compound F1

employed in Examples 2 to 4 are with 1.5% of the amount employed in Comparative Example A, while the amounts of compound F2 employed in Examples 2 to 4 are within15 of the amount employed in Comparative Example A. However, it is significant to note that there is no evidence that the small difference in the amounts of F1 and F2 in the inventive and comparative examples will not make a difference in the resulting properties.

With respect to Applicants' arguments regarding unexpected results of Inventive Example 2 and Comparative Example A with respect to the GWIT, it is noted that the comparison is not a proper side by side the different amount of compound F1 and F2 in both embodiments, i.e.

(a) Inventive Example 2 comprises 12.4 wt % F1 as compared to 11.5 wt % utilized in Comparative Example A

(b) Inventive Example 2 comprises 6.5 wt % F2 as compared to 6 wt % F2 utilized in Comparative Example A.

Given the different amounts of F1 and F2 utilized in the Inventive Example 2 and Comparative A, it is the Examiner's position that the comparison of these embodiments it is not a proper side by side comparison.

Further, it is noted that the present claims require that F1 is from 5 to 15 wt %, F2 is from 2 to10 wt %, and F3 is from 1 to 10 wt %, and the total of F1+F2+F3 is from 8 to 35 wt %. However, the inventive embodiments comprises 20-22.5 wt % of F1+F2+F3, F1 is 10-12 wt %, F2 is from 5 to 6.5 wt % and F3 is from 1 to 7 wt %. As set forth in MPEP 716.02(d), whether unexpected results are the result of unexpectedly improved results or a property not taught by the prior art, "objective evidence of nonobviousness must be commensurate in scope with the claims

which the evidence is offered to support". In other words, the showing of unexpected results must be reviewed to see if the results occurred over the entire claimed range, *In re Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980). Applicants have not provided data to show that the unexpected results do in fact occur over the entire claimed range of F1, F2, and F3.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXANDER C. KOLLIAS whose telephone number is (571)-270-3869. The examiner can normally be reached on Monday-Friday, 8:00 AM -5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571)-272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. C. K./
Examiner, Art Unit 1725

/Basia Ridley/
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